

URS/THE KEN R. WHITE COMPANY

Mailing Address: P.O. Drawer 6218 • Denver, Colorado 80206  
3955 East Exposition Avenue • Suite 300 • Denver, Colorado • 303/744-1861



March 4, 1974

Christo and Jeanne-Claude Christo  
48 Howard Street  
New York, New York 10013

RE: Christo's Running Fence  
KRW No. 3031

Dear Christo and Jeanne-Claude:

Recently we discussed the procedures we must follow to obtain all of the approvals and permits needed before construction can begin on the Running Fence. You will recall that there are many such permits and, unfortunately, those from certain organizations must be obtained in a specified sequence. If each of the organizations in this sequence should actually take the minimum time which they quote for processing our applications, the permit process will still require six months! This would barely allow time for successful construction and display of the Running Fence during the fall of 1974.

As you see, in the process of getting the permits, timing is critical.

Construction and display of the Running Fence are limited to those months of the year in which the dairy farmers can allow us to use their fields and in which the weather is suitable for construction and display. Essentially, this means very late summer and early fall.

Thus, any delay at all in the permit process will almost certainly put off completion of your proposed work until the following year, and it is reasonable to expect that delay will occur somewhere along the line. You realize, of course, that such a delay would be not only disappointing, but very costly to you - costly as to land rents, insurance, bonds and labor and material prices.

Consequently, I believe we must do everything possible to minimize the time for each permit in that required sequence.



Christo and Jeanne-Claude Christo

- 2 -

3/4/74

We can minimize delay, it seems to me, in only two ways:

1. By being certain that all of our applications are complete in every detail and by having ready the answers to all questions that may be raised.
2. By getting each government agency concerned to realize that timing is critical to us, so that they will act on our applications as promptly as possible.

The latter may be helpful with County applications, but it could be even more helpful in the case of the Corps of Engineers, to whom we must apply for a "Permit for Work in Navigable Waters." Our application will be presented initially to the Corps of Engineers, Regulatory Functions Branch, Department of the Army, at their San Francisco District Office. That office now has a backlog of permit applications which will take three to four months to process and, normally, they consider applications in the order they are received.

If we could prevail upon the Corps of Engineers to consider our application immediately upon receipt, rather than waiting until the backlog of applications has been considered, we might save much time and 1974 completion of the Running Fence would be feasible. It will help even further if we can convince the Corps of Engineers that the temporary nature of the project means that the impact on areas of their concern will truly be minimal. If the Corps realizes this, their actual work in processing our application may be reduced to a minimum, with the District Office making the decision and issuing the necessary letter of permission.

If Marty Abell is successful in accelerating the process of approval by Marin County and the California Coastal Commission (and I believe he will be) and if the Corps of Engineers acts quickly on our application, I believe that Christo's Running Fence will become a reality in 1974.

Sincerely yours,

URS/THE KEN R. WHITE COMPANY

A handwritten signature in cursive script, appearing to read 'Ernest C. Harris'.

Ernest C. Harris, Ph.D., P.E.  
Project Engineer for the Running Fence

ECH:dje

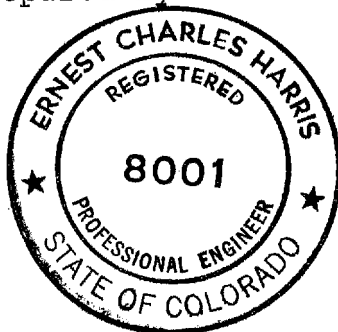
CONSTRUCTION DETAILS SUMMARY

ZONES 1, 2, 3 & 4 OF

CHRISTO'S RUNNING FENCE

The attached pages 104 to 109, inclusive, from the structural computations for the Running Fence show the main features of construction in the various zones of the project. Additional detail can be provided if needed.

Prepared by



*Ernest C. Harris*  
Ernest C. Harris, P.E., PhD  
Project Engineer for the  
Running Fence  
The Ken R. White Company

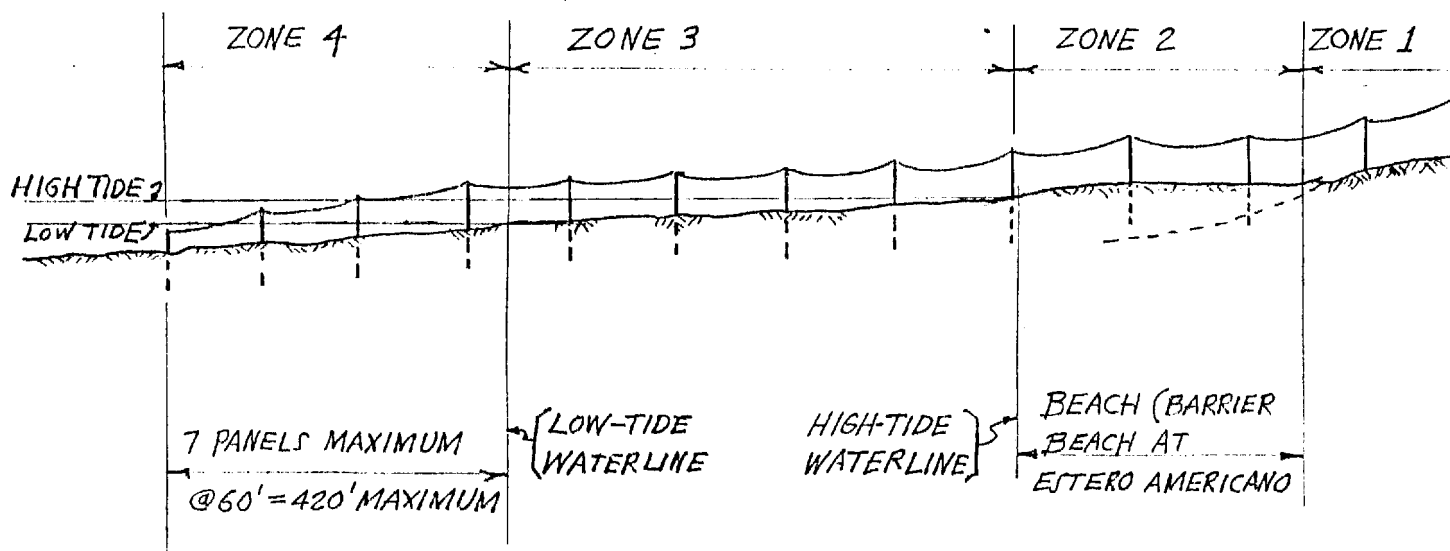
The attached sheets and the structural computations related to the design they summarize were prepared under my direct supervision and control.



*Sargis S. Safarian*  
Sargis S. Safarian, P.E.  
Vice President  
The Ken R. White Company



K R W JOB NO. 3031-800 DATE 2-15-74 BY ECH CHECKED BY S.S.  
 CLIENT CHRISTO & RUNNING FENCE CORP. PROJECT RUNNING FENCE (Date)  
 SUBJECT DESIGN OF LAND, BEACH AND OCEAN PORTIONS



PROFILE - OCEAN END OF RUNNING FENCE (NOT TO SCALE - LENGTH AND NUMBER OF PANELS WILL DIFFER FROM THAT PICTURED)

### EXPLANATION OF ZONES

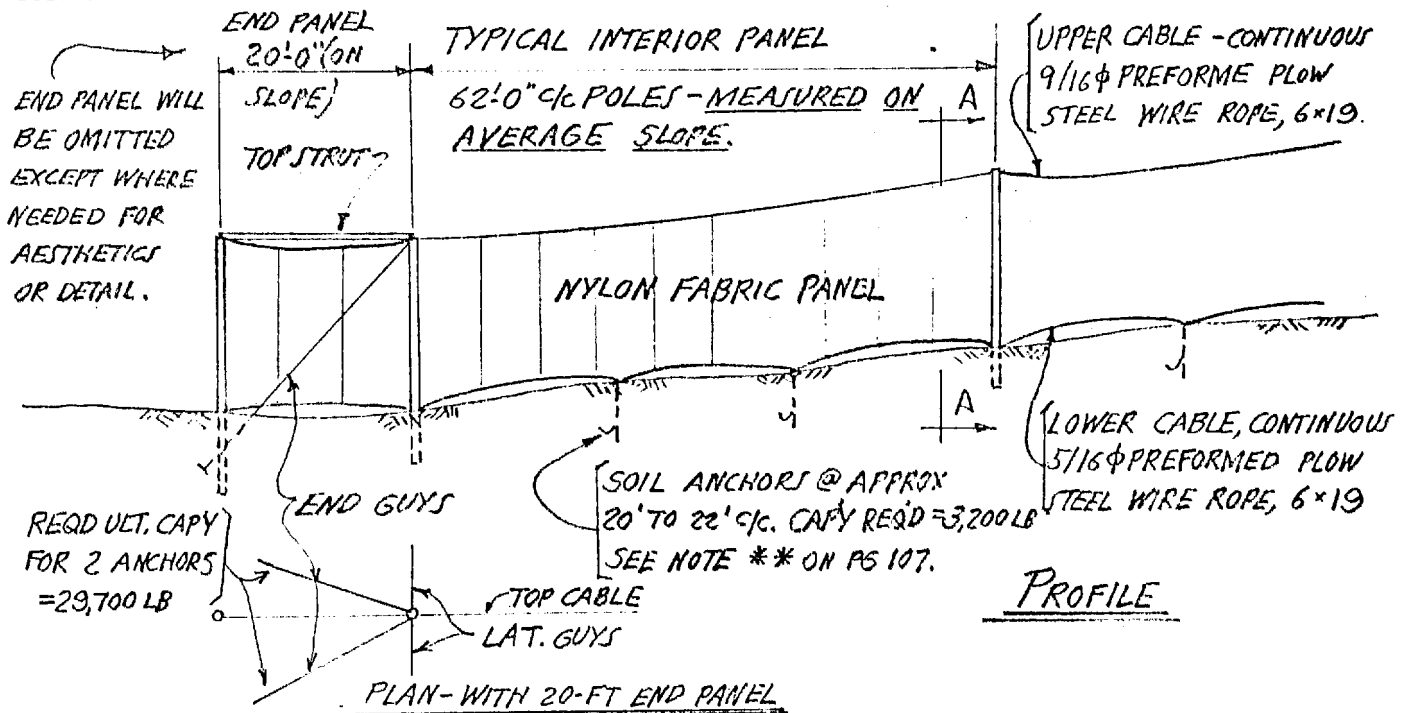
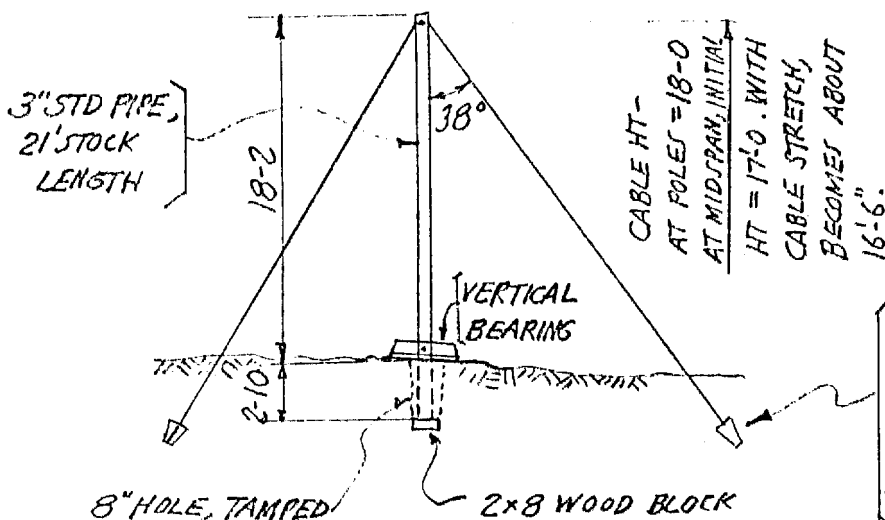
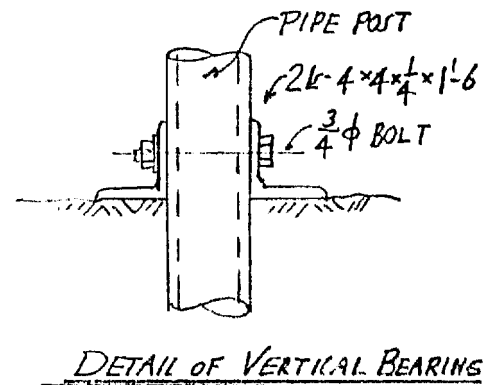
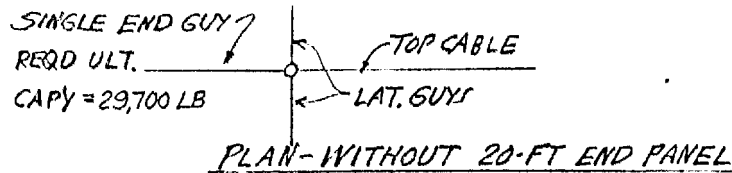
- ZONE 1 - CONSTRUCTION INLAND FROM BEACH
- ZONE 2 - CONSTRUCTION ON BEACH ABOVE HIGH TIDE
- ZONE 3 - CONSTRUCTION IN TIDAL ZONE; LOWER EDGE OF FENCE VISIBLE AT LOW TIDE BUT SUBMERGED AT HIGH TIDE.
- ZONE 4 - CONSTRUCTION IN WATER; LOWER EDGE ALWAYS SUBMERGED; UPPER EDGE ABOVE HIGH TIDE AT INNEREND, BUT SLIGHTLY BELOW HIGH TIDE AT OUTER END.

### FOR CONSTRUCTION DETAILS, SEE:

- ZONE 1 - PGS 105 & 106
- ZONE 2 - PG 107
- ZONE 3 - PG 108
- ZONE 4 - PG 109

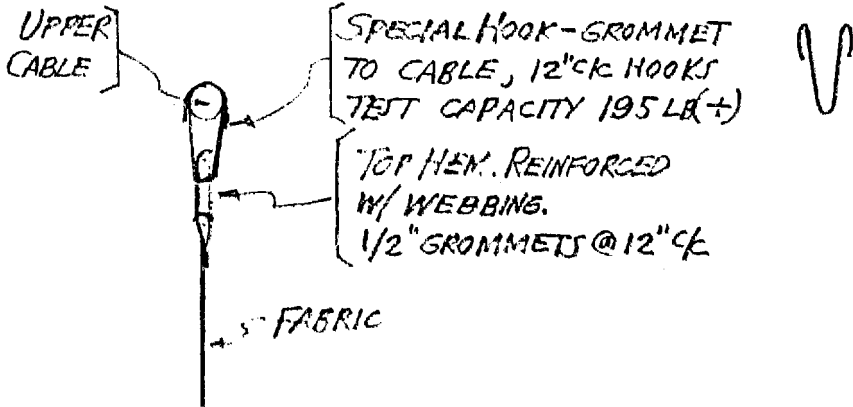


K R W JOB NO. 3031-800 DATE 2-18-74 BY ECH CHECKED BY SR  
 CLIENT CHRUTO & RUNNING FENCE CORP. PROJECT RUNNING FENCE (Date)  
 SUBJECT ZONE 1 CONSTRUCTION - INLAND FROM BEACH

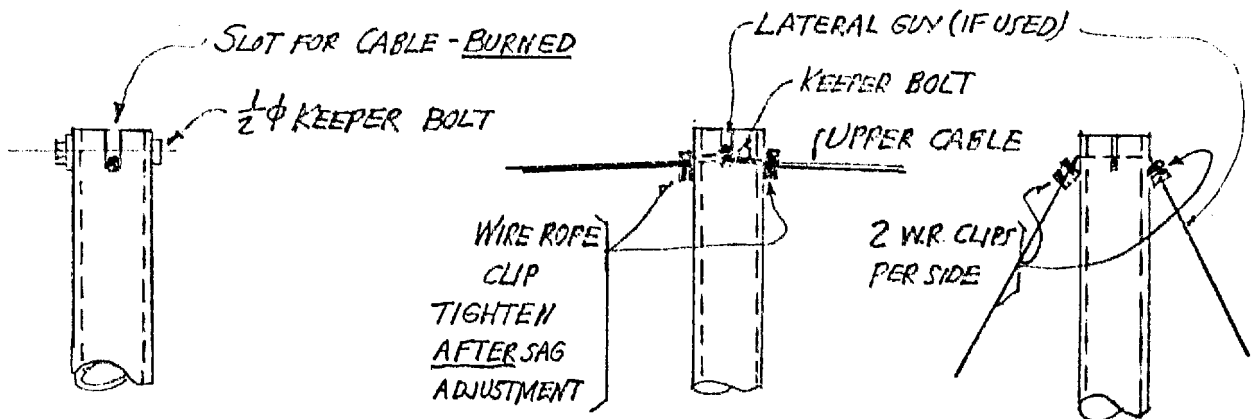
PROFILESECTION A-A



K R W JOB NO. 3031-800 DATE 2-16-74 BY ECH CHECKED BY SS  
CLIENT CHRISTO & RUNNING FENCE CORP. PROJECT RUNNING FENCE (Date)  
SUBJECT ZONE 1 CONSTRUCTION-CONT'D

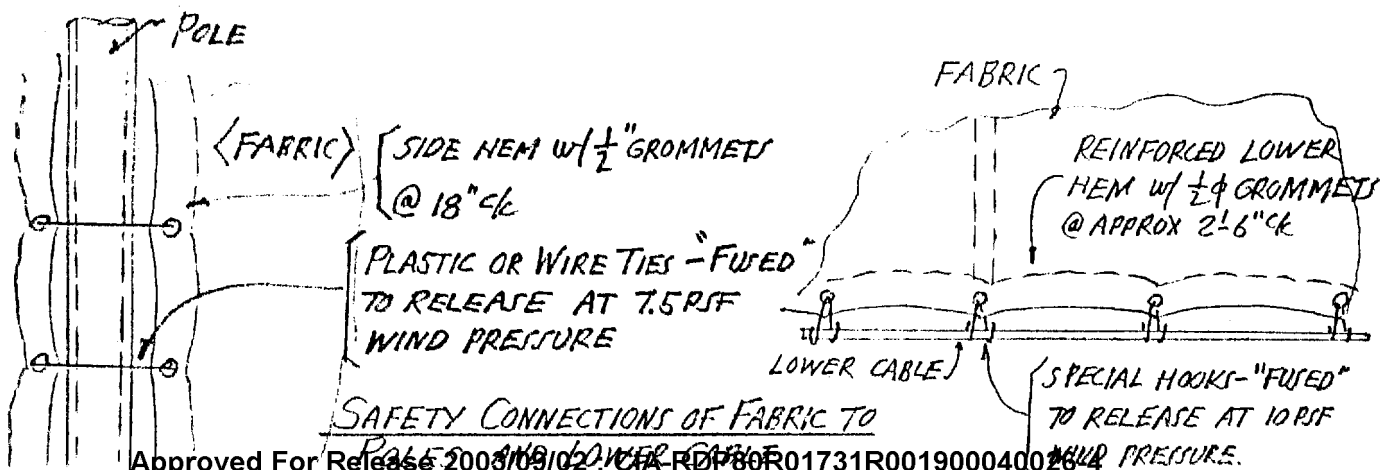


DETAIL - CONNECTION OF FABRIC TO UPPER CABLE



DETAIL - CONNECTION OF UPPER CABLE TO POLE

DETAIL - WIRE ROPE CLIPS AT POLE FOR UPPER CABLE AND LAT. GUYS



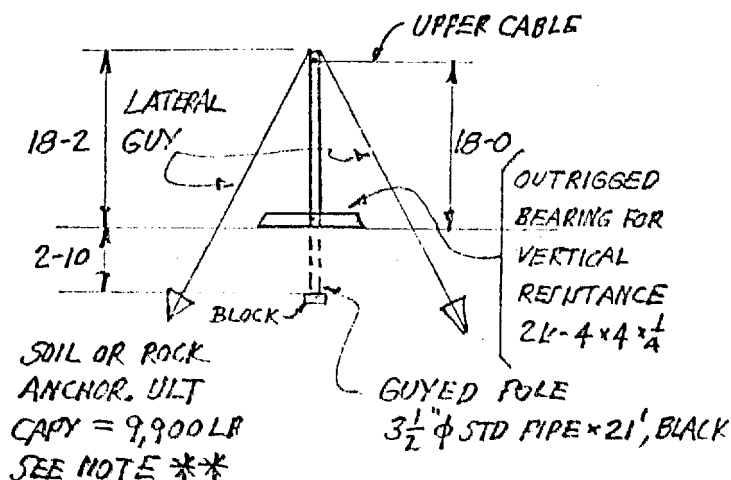
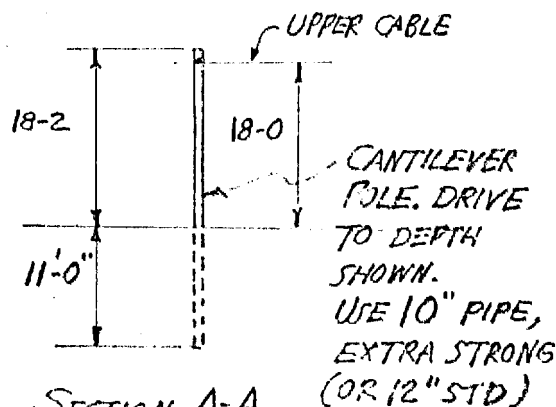
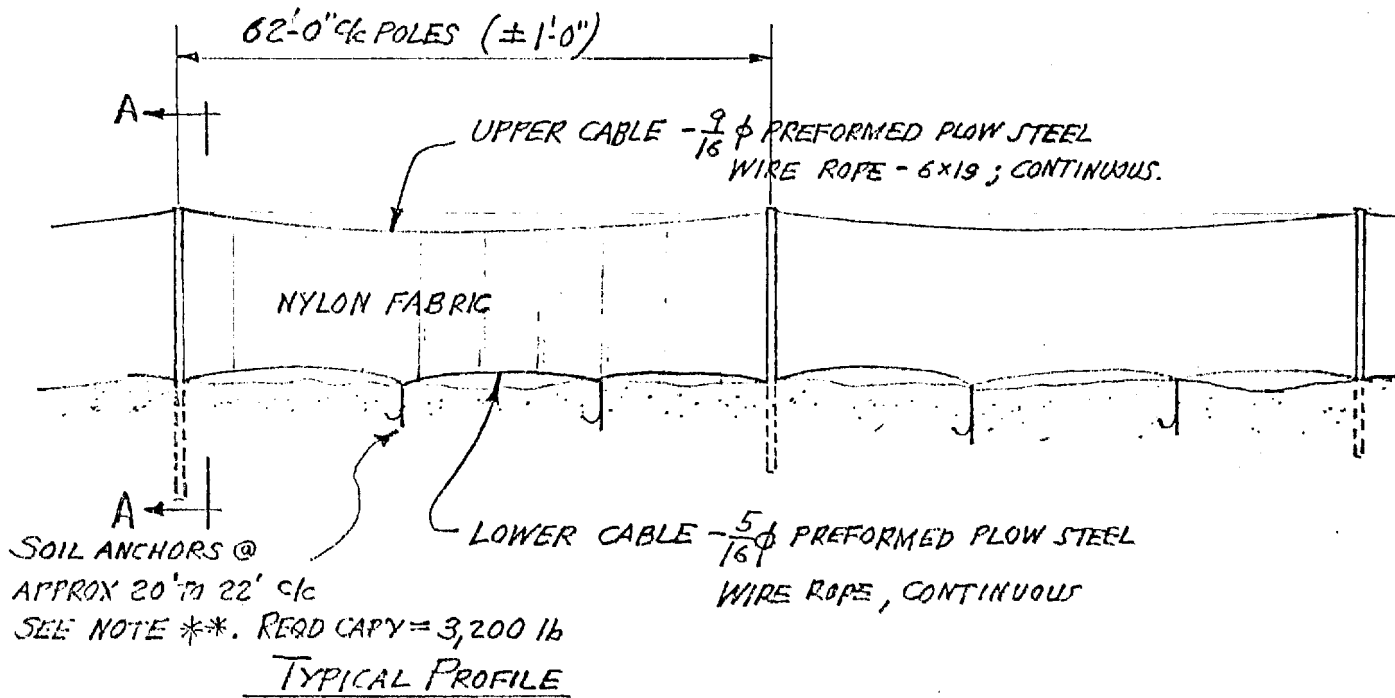


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PAGE 107 OF

K R W JOB NO. 3031-810 DATE 2-16-74 BY ECH CHECKED BY SS  
 CLIENT CHRIST & RUNNING FENCE CORP. PROJECT RUNNING FENCE (Date)  
 SUBJECT ZONE 2 CONSTRUCTION - ON BEACH, ABOVE HIGH TIDE

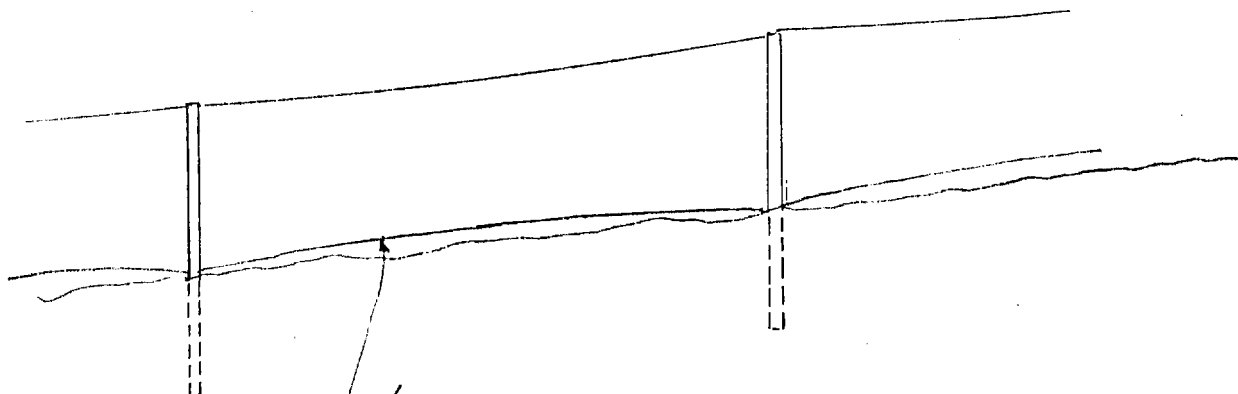
NOTE: ALL DETAILS ON PG 106  
 APPLY TO ZONE 2 ALSO



NOTE \*\*: ALL SOIL & ROCK ANCHORS (UNLESS NOTED) WILL BE AS MFD BY  
 FORESIGHT INDUSTRIES OF CHEYENNE, WYOMING. ANCHOR TYPE AND DEPTH WILL BE  
 SELECTED FROM IN-SITU SOIL SHEAR TEST & TABLES OF STRENGTH TEST DATA  
 SUPPLIED BY FORESIGHT AND APPROVED BY KRW ENGINEER.



K R W JOB NO. 3031-830 DATE 2-15-74 BY ECH CHECKED BY SR  
CLIENT CHRISTO & RUNNING FENCE CORP. PROJECT RUNNING FENCE (Date)  
SUBJECT ZONE 3 CONSTRUCTION - BETWEEN WATERLINES FOR  
HIGH AND LOW TIDE

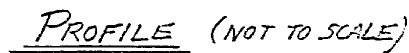


BOTTOM CABLE SPANS FROM POLE  
TO POLE. USE 9/16" PREFORMED PLW-  
STEEL WIRE ROPE, 6x19, CONTINUOUS. NO  
SOIL ANCHORS REQ'D FOR BOTTOM CABLE.

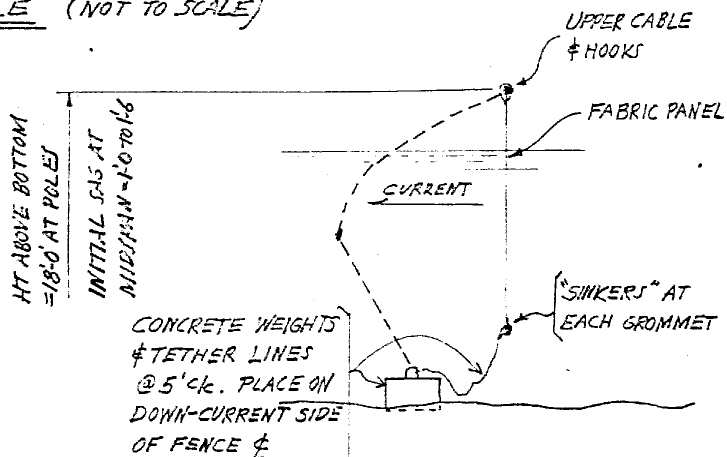
TYPICAL PROFILE - EXCEPT FOR DETAIL SHOWN HERE,  
CONSTRUCTION IS IDENTICAL TO THAT FOR ZONE 2, PG 107 (AND  
DETAILS ON PG 106).



Sheet 6



1. SHORE END OF EACH PANEL TO BE UNCONNECTED TO POLE EXCEPT AT TOP GROMMET.
2. OFFSHORE END OF EACH PANEL TO BE CONNECTED TO POLE.
3. NO BOTTOM CABLE.



K R W JOB NO. 2021-800 DATE 2-19-74 BY EGH CHECKED BY SS  
(Date)  
CLIENT CHILTO & RUNNING FENCE CORP. PROJECT RUNNING FENCE  
SUBJECT ZONE 4 CONSTRUCTION - OFFSHORE FROM LOW TIDE LINE

R004900040026-4  
SECTION B-B

KRW No. 3031

ECH, 2-18-74

MATERIALS REQUIRED FOR CHRISTO'S RUNNING FENCETYPE AND DISPOSITION

At the conclusion of the Running Fence display period, the entire project will be carefully dismantled. All parts will be removed except for those deep-seated ground anchors which will remain completely invisible and whose removal would disturb the soil surface. Shallow ground anchors, and all soil anchors used in beach areas will be removed.

In general, all materials removed will become the property of the private landowner for his re-use for his own purposes. Material not wanted by the landowner will be removed and offered for purchase by others. Potential purchasers include other farmers, contractors and manufacturers.

<u>Use and Type</u>	<u>Quantity (approx.)</u>	<u>Disposition</u>
Nylon fabric  (This fabric has already been purchased by the artist and is stored awaiting fabrication.)	220,000 sq yd	Landowner reuse. (Or sell for reuse by others.)
Upper Cable 9/16 preformed wire rope	106,000 lin ft	Landowner reuse. (Or sell for reuse by others.)
Lower Cable 5/16 preformed wire rope	105,000 lin ft	Landowner reuse. (Or sell for reuse by others.)
Lateral Guys 7-strand twisted wire	80,000 ft	Landowner reuse. (Or sell for reuse by others, or recycle as scrap.)

<u>Use and Type</u>	<u>Quantity (approx.)</u>	<u>Disposition</u>
Soil Anchors (or rock)-		
Lower cable anchors	3,500	Recycle as scrap.
Guy anchors, lateral	3,700	Leave embedded, or recycle as scrap.
Guy anchors, end	500	Leave embedded, or recycle as scrap.
Wire hooks for fabric attachment (several sizes and shapes)	4,950 lb	Recycle as scrap.
 Poles (land portion) 3" and 3½" std pipe, 21' long	 1,800	 Landowner reuse. (Or sell for reuse by others.)
 Poles (beach and ocean portion) 10" extra heavy pipe, 29' long	 20	 Sell for reuse.
 Cable clamps	 10,000	 Landowner reuse. (Or sell for reuse by others.)
 Wood blocks 2 x 8 nominal x 8" (Scraps or lowest grade)	 1,800	 Leave underground.
 Pole bases Steel angles, about 18" long	 3,500	 Landowner reuse, or recycle as scrap.
 Pole Bolts ½-in. and ¾ in.	 3,600	 Landowner reuse. (Or sell for reuse by others.)

CHRISTO'S RUNNING FENCE

The "Running Fence" is a work conceived by and to be constructed by New York artist, Christo. This major, modern art project - like others of Christo's major works - will be temporary only. Though the preparation for the Running Fence will require possibly four months of field work, the display itself will be for a period not to exceed four weeks. Following this short display period, the Running Fence and its supporting structure will be removed, so that no visible evidence will remain.

The "Running Fence" will be 18 feet high and about 20 miles long, emerging from the ocean and following an undulating path inland. Its route and configuration have been selected so that natural beauty and that of the art work will complement each other. The route is shown by the plot plan and topographic maps included with the application.

The Running Fence will be of heavy, white nylon fabric, hung from a steel cable strung between steel poles. The poles, generally 60 feet apart, will be embedded three feet in the ground and braced laterally with guy wires and earth (or rock) anchors. The lower edge of the fabric will be anchored to the ground at about five-foot intervals, or tied to a lower cable which will be anchored every 15 to 25 feet.

Construction of the Running Fence will be a two-phase operation. Phase I, installation of the relatively inconspicuous structural parts-poles, guys, anchors and upper cable-will take about four months. In this stage, great care will be exercised to avoid environmental damage.

Phase II, unfurling and tie-down of the entire 20 miles of fabric, is planned to take place in one day! This will be possible by using many trained two- or three-person crews and assigning each crew its own, reasonably short length of the project. Their work on one day will be to clip the fabric panels to the cable and on the final day to unfurl the panels, tie them down at the bottom and lace them to the poles.

A safety feature of the Running Fence will be "fused" tie-downs and pole ties, designed to break and release the lower edge and sides of the fabric in the event of wind pressures

exceeding low specified limits. With only its upper edge attached, the fabric will then "spill" the wind and avoid damage to the poles, guys and anchorages. With return to lower wind speeds, the lower edge can be tied down again.

Ernest C. Harris, PhD, P.E.  
Senior Staff Engineer  
The Ken R. White Company  
2-8-74



K R W JOB NO. 3031-800 DATE Feb. 8, 1974 BY E.C.H. CHECKED BY S.S.S.  
CLIENT Christo (Running Fence Corp.) PROJECT Running Fence (Date)

Computation sheets for stability and strength of structural system of Christo's Running Fence under winds causing 20 psf resultant force on flat, vertical surfaces.



*Ernest Harris*

Ernest C. Harris, P.E.

The attached computation sheets, numbered pages 95 to 101, inclusive were prepared under my supervision and control..



*Sargis S. Safarian*

Sargis S. Safarian, P.E.

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Ernest C. Harris, PhD, P.E.  
Senior Staff Engineer  
The Ken R. White Company  
2-8-74





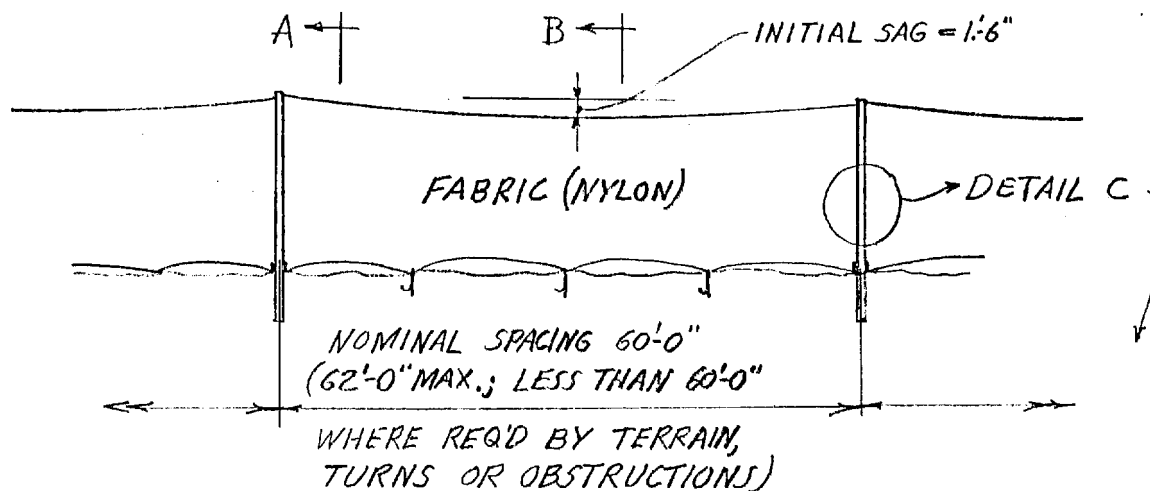
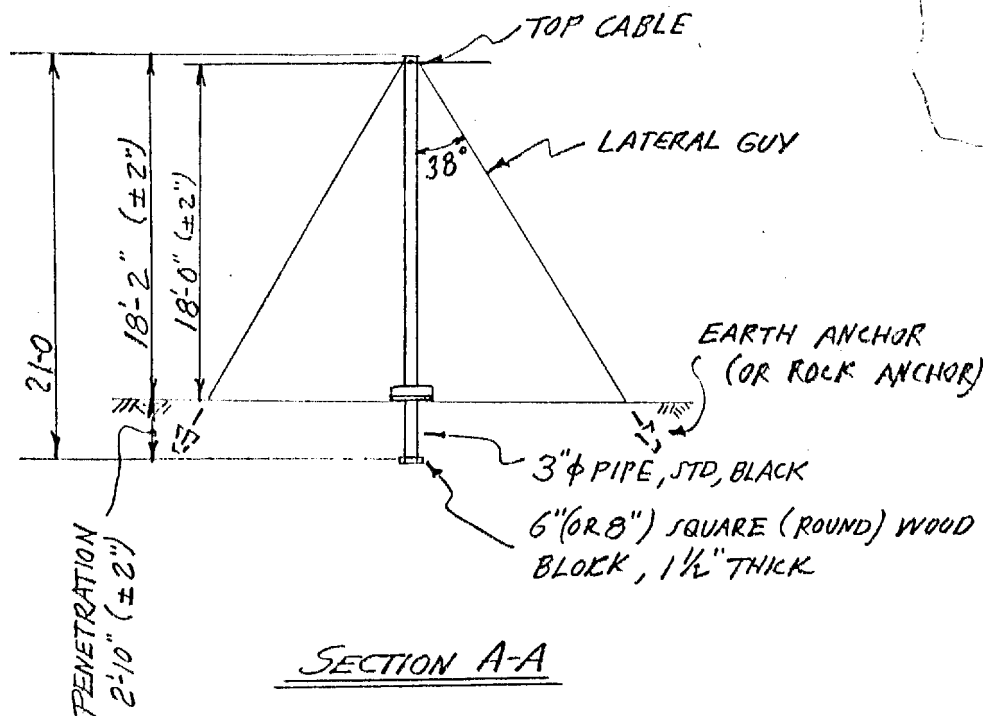
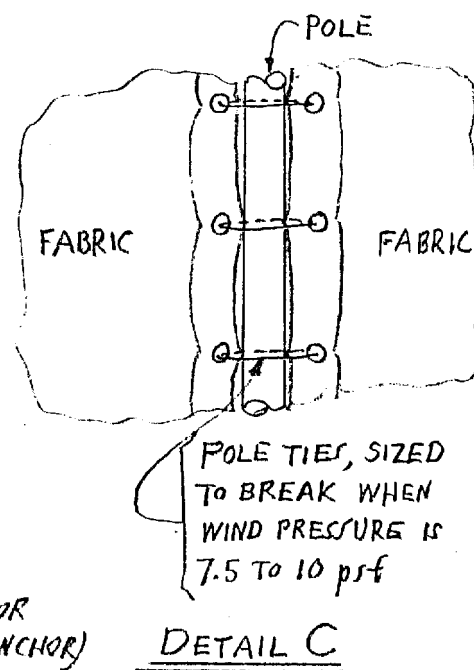
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PAGE 95 OF

K R W JOB NO. 3031-800 DATE 2-7-74 BY ECH CHECKED BY S.S.

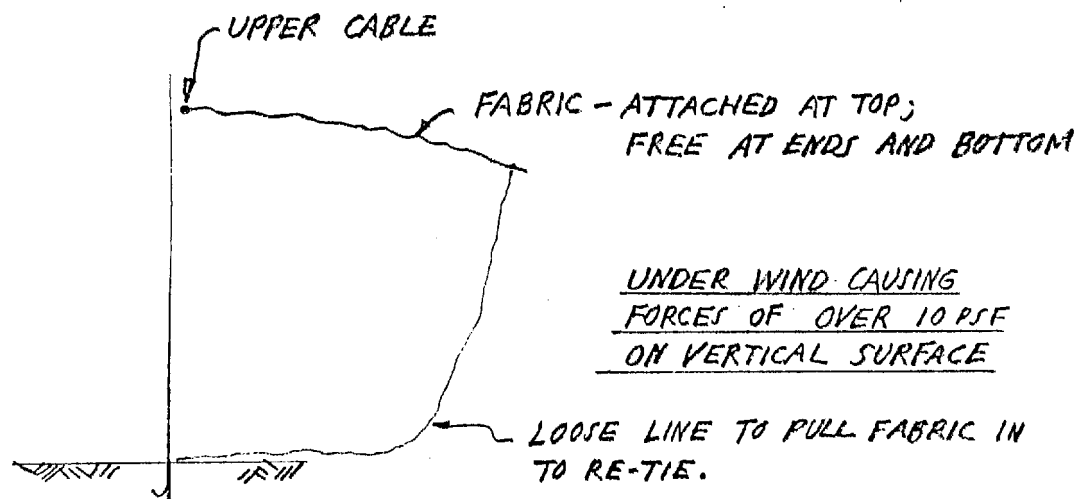
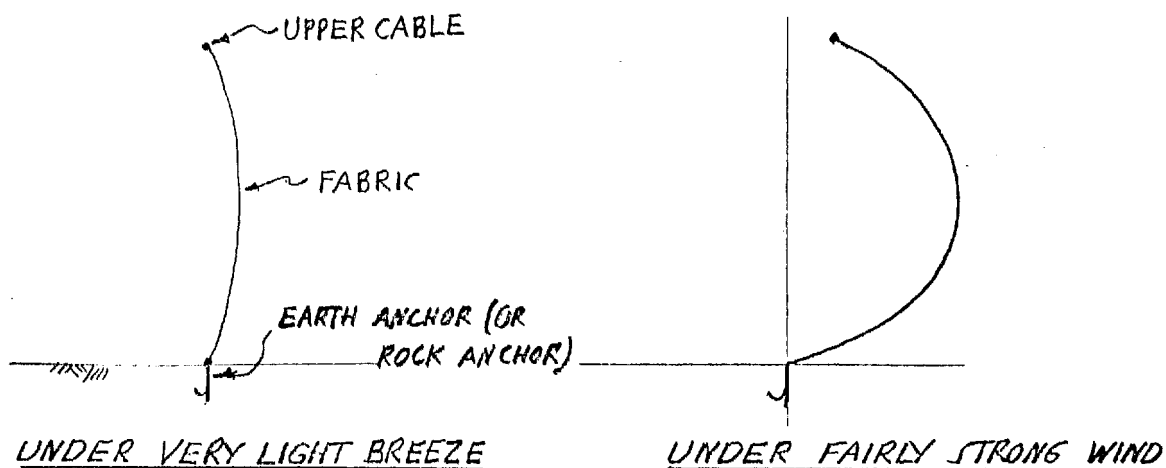
CLIENT CHRUTO PROJECT RUNNING FENCE (Date)

SUBJECT Analysis of Structural System Under 20-psf Wind Load

GENERAL CONFIGURATIONA ← B  
(NEXT PG)SECTION A-ADETAIL C



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PAGE 95 OF     K R W JOB NO. 3031-800 DATE 2-7-74 BY ECN CHECKED BY S.S.  
(Date)CLIENT CHRISTO PROJECT RUNNING FENCESUBJECT Analysis of Structural System Under 20-psf Wind LoadGENERAL CONFIGURATION - CONT'DSECTION B-B FOR 3 CASES OF WIND PRESSURE



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URS / THE KEN R. WHITE COMPANY

Approved For Release 2003/09/02 : CIA-RDP80R01731R001900040026-4  
Denver, Colorado 80209

PAGE 97 OF     

K R W JOB NO. 3031-800 DATE 2-7-74 BY ECN CHECKED BY S.S.

CLIENT CHRU TO PROJECT RUNNING FENCE (Date)

SUBJECT     

## DESIGN CRITERIA

### 1. WIND FORCES

A. ON STRUCTURE WITH FABRIC IN PLACE, ANCHORED AT  
BOTTOM AND TIED TO POLES AT EACH END -

\* 7.5 LB / SQ FT OF VERTICAL PROJECTION

B. ON STRUCTURE WITH FABRIC IN PLACE, ANCHORED AT  
BOTTOM BUT FREE AT EACH END -

\*\* 10 LB / SQ FT OF VERTICAL PROJECTION

C. ON STRUCTURE WITH FABRIC HELD BY UPPER EDGE ONLY,  
ENDS AND BOTTOM EDGES FREE -

20 LB / SQ FT OF VERTICAL PROJECTION

- \* "FUSED" POLE TIES WILL BREAK AT PRESSURES  $> 7.5$  PSF
- \*\* "FUSED" BOTTOM TIE-DOWN CORDS WILL BREAK AT  
PRESSURES  $> 10$  PSF.

### 2. PRINCIPLE OF "FUSED" CONNECTIONS

FABRIC STRENGTH WOULD BE CONTROLLING FACTOR IF TIE-DOWNS  
WERE DESIGNED TO WITHSTAND 20 PSF WIND.

TO PROTECT FABRIC, POLE TIES AND TIE-DOWNS BREAK AWAY,  
ALLOWING FABRIC TO FLY FREE. THIS "SPILLS" THE WIND,  
REDUCING THE LOAD ON STRUCTURAL MEMBERS AND ALLOWS THEM  
TO SURVIVE MUCH STRONGER WINDS WITHOUT DAMAGE.

WITH RETURN TO LOWER WIND VELOCITY, FABRIC EDGE AND  
BOTTOM TIE CAN BE REPLACED AND THE DISPLAY RESUMED.

PROPER SIZE OF FUSED CONNECTIONS IS DETERMINED BY LAB. TEST  
AND VERIFIED BY USE ON FULL-SCALE PROTOTYPE TEST (IN COLORADO).



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PAGE 98 OF     K R W JOB NO. 3031-800 DATE 2-7-74 BY ECH CHECKED BY S.S.  
(Date)CLIENT CHRISTO PROJECT RUNNING FENCESUBJECT     DESIGN CRITERIA - CONT'D3. EARTH ANCHORS

ULTIMATE CAPACITIES AT VARIOUS DEPTHS AND IN VARIOUS SOILS IS DETERMINED BY MANUFACTURER'S TEST. (FORESIGHT INDUSTRIES, CHEYENNE, WYOMING).

SOIL PROPERTIES TO BE DETERMINED BY IN-SITU TEST AT EACH TYPE LOCATION IN FIELD.

ANCHOR TYPE AND DEPTH FOR EACH LOCATION WILL BE SELECTED USING -

RESULTS OF IN-SITU TEST;

MANUFACTURER'S TABLES

REQUIRED ULTIMATE CAPACITY WILL BE COMPUTED MAXIMUM WIND LOAD X FACTOR OF SAFETY, WHERE

$$F/S = \frac{3}{4} \times 1.6 = 1.2 ; \text{USE } 1.3 \text{ UNLESS NOTED.}$$

↓ APPROX F/S FOR PERMANENT LOAD (AISC, ACI)  
↓ FACTOR FOR WIND (SHORT-TERM LOADINGS)

4. POLES

DESIGN BY AISC, BUT VERIFY BY PROTOTYPE TEST.

SUBJECT TO LATERAL WIND LOAD FROM FABRIC ONLY FOR WIND PRESSURES UP TO 7.5 PSF.

AT WIND PRESSURE OF 20 PSF, POLE IS LOADED ONLY BY CABLE FORCES AT TOP AND BY WIND ON POLE ALONE.



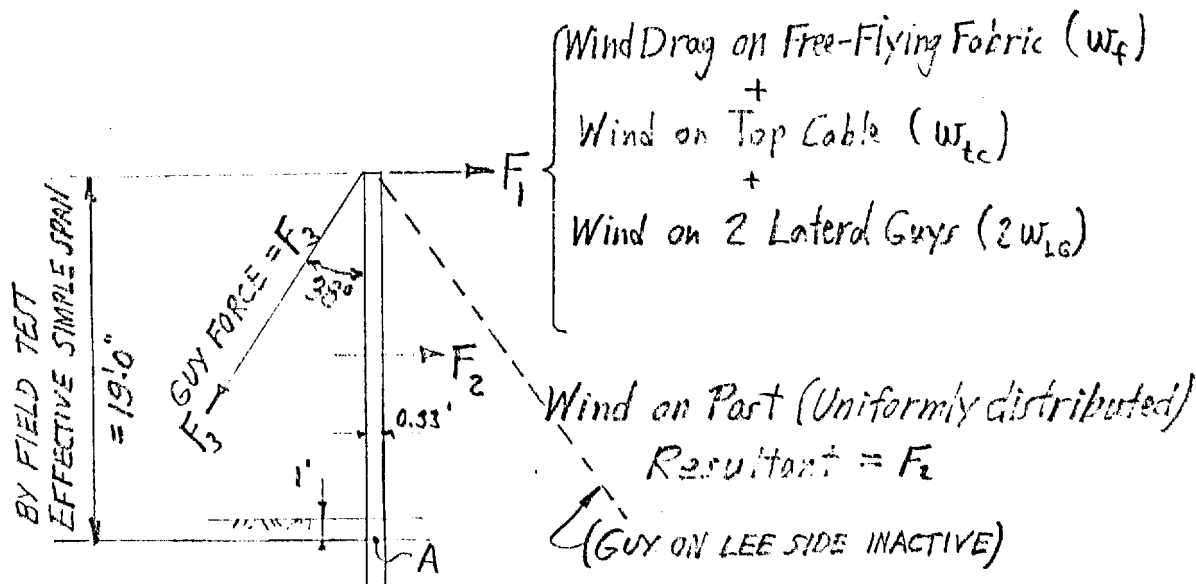
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PAGE 39 OF

K R W JOB NO. 3031-801 DATE 2-8-74 BY ECH CHECKED BY SS (Date)

CLIENT CHRISTO PROJECT RUNNING FENCE

SUBJECT ANALYSIS OF STRUCTURAL SYSTEM UNDER 20 PSF WIND LOAD

Wind Forces at 20 psf pressure on vertical flat surface:

$$W_f = C_d A q; C_d = 0.05, \text{ but double it to cover erratic flap, etc.; use } C_d = 0.1$$

$$20 \text{ psf} = q(0.8 + 0.5) = 1.3 q; q = 20/1.3 \text{ (ASCE)}$$

$$\therefore W_f \leq 0.1 (60 \times 18) (20/1.3) \leq 1,660 \text{ lb}$$

$$W_{tc} = \text{wind on } 60' \text{ of } 9/16 \phi \text{ wire rope}$$

$$= 20 \text{ psf} \times 60' \times 0.047' \times 0.60 = 34 \text{ lb}$$

(factor for cylindrical shape)

$$W_{lg} = \text{wind on } 36' \text{ projection of } 1/2" \text{ guys}$$

$$= 20 \times 36 \times 0.042 \times 0.60 = 18 \text{ lb}$$

$$F_1 \leq 1,712 \text{ lb}$$

$$F_2 = 20 \times 18' \times 0.33' \times 0.60 = 71 \text{ lb}$$

Solve guy force and anchor load  $F_3$ By  $\sum M_A = 0$  -

$$F_3 \sin 38^\circ \times 19 = 19 F_1 + 10 F_2 = 19 \times 1,712 + 10 \times 71 = 33,200$$

$$F_3 = 33,200 / (0.615 \times 19) = 2,840 \text{ lb}$$



K R W JOB NO. 3031-800 DATE 2-8-74 BY ECH CHECKED BY SS  
 CLIENT CHRISTO PROJECT RUNNING FENCE (Date)  
 SUBJECT ANALYSIS OF STRUCTURAL SYSTEM UNDER 20 PSF WIND LOAD

FACTORS OF SAFETY

LATERAL GUY - ULT. STRENGTH = 10,000 lb, min.

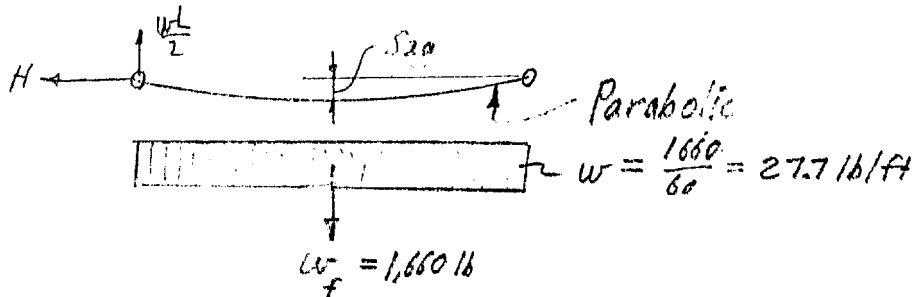
$$FS \text{ under } 20 \text{ psf wind} \geq \frac{10000}{2840} = 3.5 \text{ or more} \quad OK$$

LATERAL GUY ANCHOR -

SPECIFIED ULTIMATE @ NO SLIP = 10,000 lb

$$FS \text{ under } 20 \text{ psf wind} = \frac{10000}{2810} = 3.5 \text{ min.} \quad OK$$

∴ Lateral Guy System OK

Upper Cable

Plan View

To be conservative, assume final sag = initial sag = 1.5'

$$H = wL^2/8S = 27.7(60)^2/(8 \times 1.5) = 8,300 \text{ lb}$$

Capacity of 9/16 - 6x19 plow steel wire rope, preformed = 13.5 tons

$$\text{Factor of Safety @ } 20 \text{ psf wind} = \frac{2000 \times 13.5}{8,300} = 3.25 \quad OK$$

(Actually,  $FS > 3.25$  since final sag under load and after stretching will be  $> 1.5'$ , as assumed.)

END GUYS

UPPER CABLE SLOPES DOWN AT  $45^\circ$  TO FORM END GUY.  
 LOAD =  $8,300\sqrt{2}$

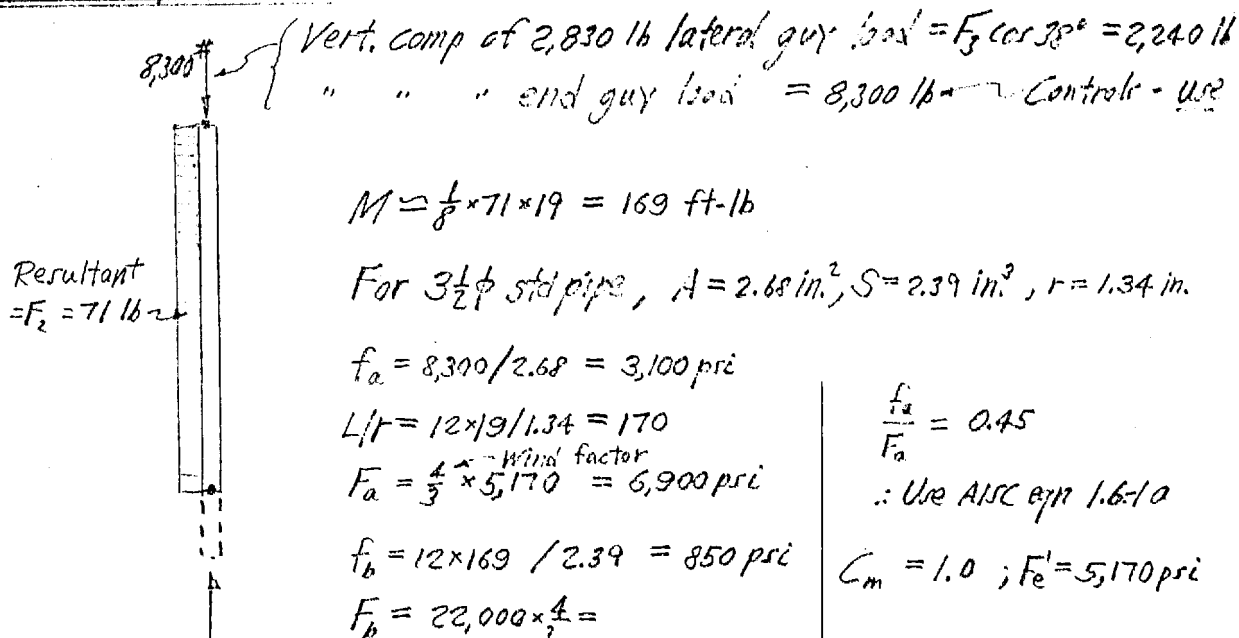
$$\text{FACTOR OF SAFETY UNDER } 20 \text{ PSF WIND} \geq \frac{3.25}{\sqrt{2}} \text{ OR } 2.3 \quad OK$$



K R W JOB NO. 3031-800 DATE 2-8-74 BY ECH CHECKED BY SS (Date)

CLIENT CHRISTO PROJECT RUNNING FENCE

SUBJECT ANALYSIS OF STRUCTURAL SYSTEM UNDER 20 PSF WIND LOAD

POLE STRENGTH

$$\frac{f_a}{F_a} + \frac{C_m f_b}{(1 - \frac{f_a}{F_e}) F_a} = 0.45 + \frac{1.0 \times 850}{(1 - \frac{3,100}{5,170}) 22,000 \times \frac{4}{3}} = 0.45 + 0.073 \ll 1.0$$

0.4

$\therefore$  POLE OK

CONCLUSIONS:

1. STRENGTH AND STABILITY OF STRUCTURAL SYSTEM OK UNDER 20 PSF WIND WITH FABRIC CONNECTED AT TOP ONLY & FUSED CONNECTIONS ALL OPENED.
2. PERFORMANCE OF FUSED CONNECTIONS HAS BEEN VERIFIED BY KRW LAB TEST AND BY FIELD TEST OF FULL-SCALE PROTOTYPE SECTION.
3. UNDER 10 PSF WIND, FABRIC TIED DOWN, FACTORS OF SAFETY FOR EARTH (OR ROCK) ANCHORS WILL BE:

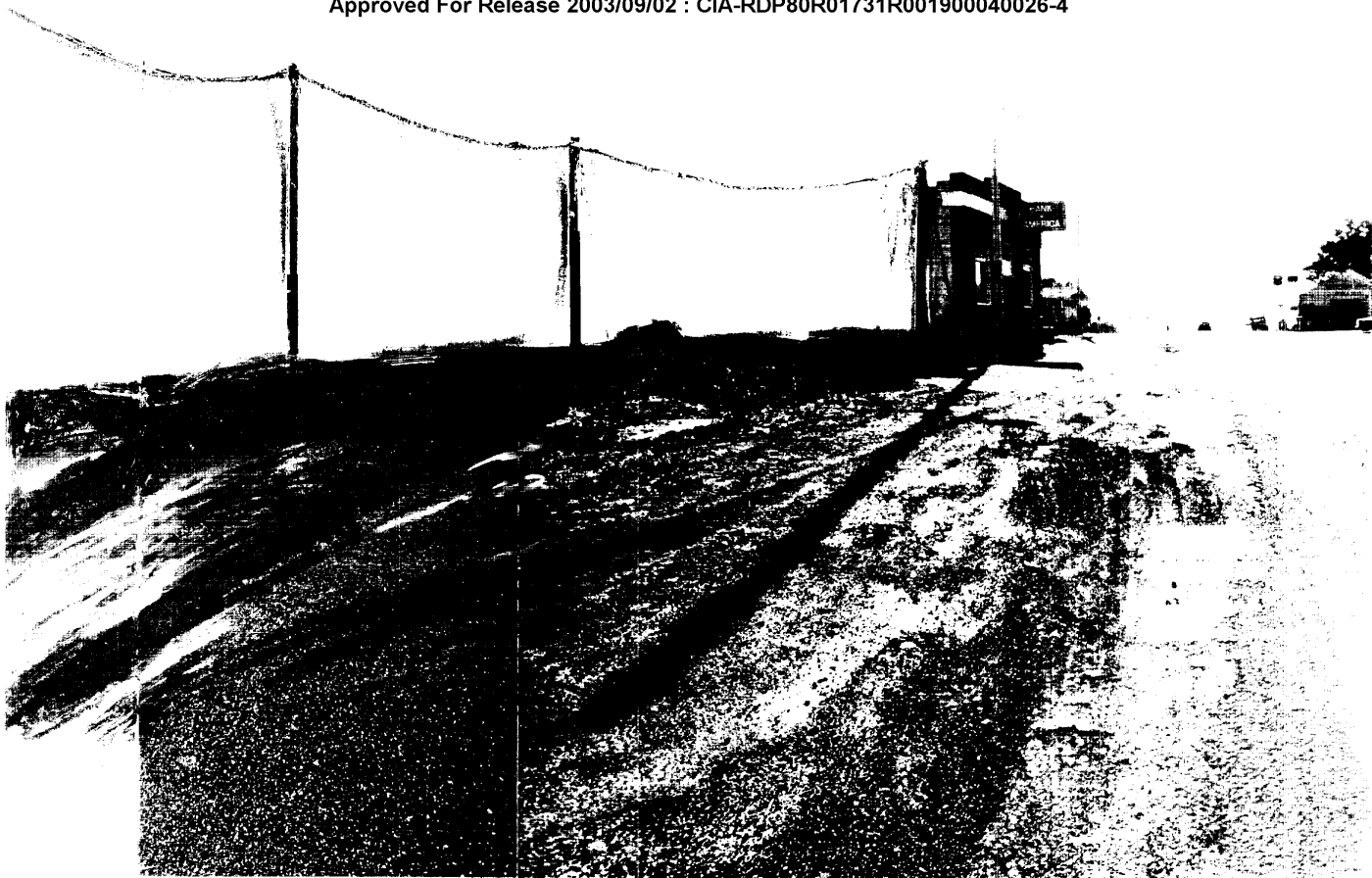
LATERAL GUYS - 1.3 MIN. ( $>$  FS OF AISC, UNDER WIND)

END GUYS - 1.5 MIN.

TIEDOWNS - 1.3 MIN.

4. AT VERTICAL AND HORIZONTAL CURVES, GUY AND POLE FORCES WILL BE MODIFIED FOR ADDITIONS DUE TO DIRECTION CHANGE. SAME FACTORS OF SAFETY WILL BE REQUIRED. COMPUTATIONS MUST

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Diristo: RUNNING FENCE 1973-74  
Project for Sonoma County and  
Marin County, State of California  
Height: 18 Feet; Length: 20 Miles  
Photo: Harry Shunk

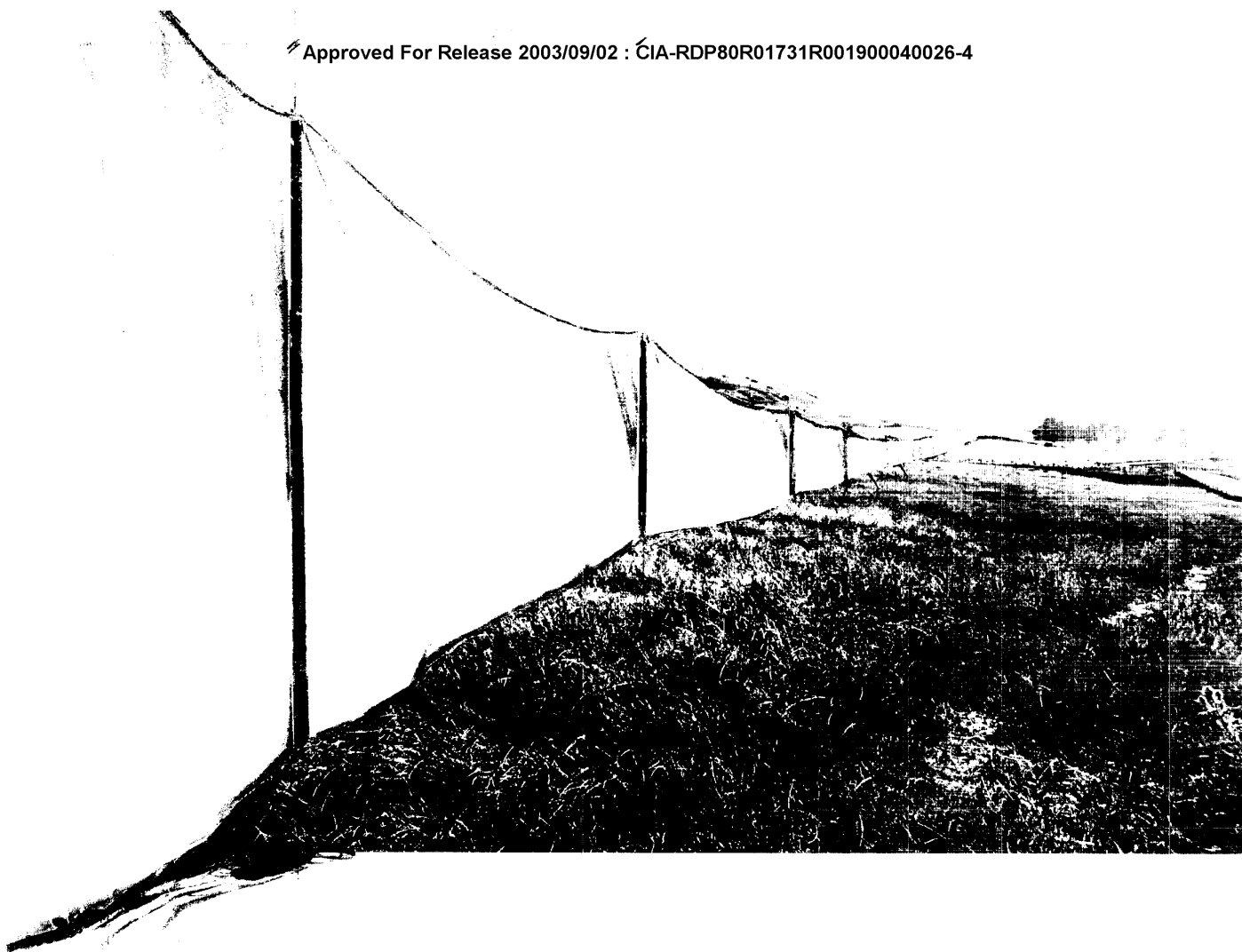
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Christo: RUNNING FENCE 1973-74  
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10/10  
20

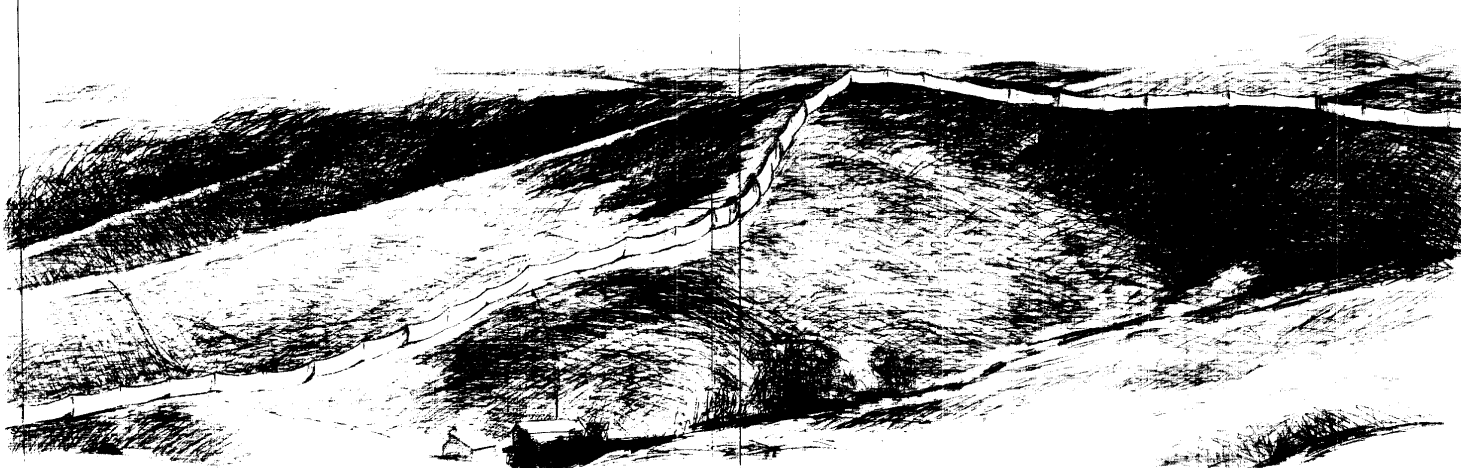
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Director: RUNNING FENCE 1973-74  
Project for Sonoma County and  
Marin County, State of California  
Height: 10 ft. Length: 20 Miles  
Photo: Harry Shunk

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Christo: RUNNING FENCE 1973-74  
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Marin County, State of California  
Height: 13 Feet; Length: 20 Miles  
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the lower  
with wood spade  
ground and found the

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Running Fence / protect Fort Sonoma County and Sonoma County, Sonoma Co California / Chart 1773



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Christo: *RUNNING FENCE* 1973-74  
Project for Sonoma County and  
Marin County, State of California  
Height: 18 Feet; Length: 20 Miles  
Photo: Harry Shunk

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